

AUG 20 2007

Docket No. 520.41122X00

Serial No. 10/058,781

Office Action dated April 20, 2007

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1. – 4. (Canceled)

5. (Currently Amended) An optical switching system configured by multistage-connecting a plurality of optical switching devices, ~~wherein~~ wherein:
~~the each~~ optical switching device comprises a plurality of optical reflection monitors with an optical reflection monitoring function, at least one of the optical monitors being placed on a path coupling the optical switching device with one of the other optical switching devices in multistage connection, and each of the optical reflection monitors detecting reflected light on a path transmitting an optical signal input to the optical switching device, passing through the multistage-connected optical switching devices so as to and locating-locate a positions-position of reflection on the path, and ~~wherein~~
each the optical reflection monitors-monitor comprise-comprises an optical isolator that passes only the optical signal and blocks the reflected light; an optical branching circuit that separates the reflected light of the optical signal; and an optical detector that monitors the reflected light.

6. (Currently Amended) An optical switching system configured by multistage-connecting a plurality of optical switching devices, ~~wherein~~ wherein:

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~~each the~~ optical switching device comprises a plurality of optical reflection monitors with an optical reflection monitoring function, at least one of the optical monitors being placed on a path coupling the optical switching device with one of the other optical switching devices in multistage connection, and each of the optical reflection monitors detecting reflected light on a path ~~transmitting an optical signal input to the optical switching device, passing through the multistage-connected optical switching devices and locating so as to locate a positions position of~~ reflection on the path, and wherein

~~each the~~ optical reflection ~~monitors monitor comprise comprises~~ an optical circulator that allows the passage of the optical signal and circulates or blocks the reflected light of the optical signal, and an optical detector that monitors the reflected light.

7 - 12. (Canceled).

13. (Currently Amended) An optical switching method enabling detection of reflected light, the method comprising the steps of:

making a setting for switching an optical ~~switch-switching system composed of a plurality of multistage-connected optical switching devices~~ and storing optical Interconnection relationships indicating optical paths passing through the plurality of optical switching devices;

making a selection of a circuit board on which optical switching devices are mounted according to a command from an operation control unit and storing an optical reflection alarm information; and

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locating positions of reflection in the optical switching system according to the optical interconnection relationships and the optical reflection alarm information being stored,

wherein the step of storing the optical reflection alarm information includes steps of:

transferring the optical reflection alarm information from the optical switching device to the operation control unit after transmitting an optical reflection alarm acquisition request to the optical switching device mounted on the selected circuit board by a CPU; and

updating the contents of the optical reflection alarm information being stored based on the optical reflection alarm information by the CPU.

14. (Currently Amended) An optical switching method enabling detection of reflected light, the method comprising the steps of:

making a setting for switching an optical ~~switch~~ switching system composed of a plurality of multistage-connected optical switching devices and storing optical interconnection relationships indicating optical paths passing through the plurality of optical switching devices;

making a selection of a circuit board on which optical switching devices are mounted according to a command from an operation control unit and storing an optical reflection alarm information; and

locating positions of reflection in the optical switching system according to the optical interconnection relationships and the optical reflection alarm information being stored,

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wherein the step of locating the positions of reflection includes steps of:

detecting an alarm position according to the optical reflection alarm
Information that has been stored, when optical reflection alarm information is
present;
searching the optical interconnection relationships being stored;
selecting a suspected abnormal optical interconnection path; and
after determining a rearmost connection among interconnected points
at which reflected light occurs, notifying the operation control unit of the rearmost
connection.

15. (Currently Amended) A method of collecting optical reflection alarm
information in an optical switching system including a system control unit and a
plurality of multistage-connected optical switch boards each of which is provided with
an optical switching unit, a board control unit and a plurality of optical reflection
monitors coupled to I/O ports of ~~an~~ the optical switching unit so that at least one of
the optical reflection monitors being placed on an optical signal path coupling the
optical switching unit with one of the other optical switching units in multistage
connection, the method comprising the steps of:

performing a settings for optical path switching in each of said optical
switching units and storing information indicative of optical interconnection
relationships between the I/O ports into a switching information register by each of
said switching board control units in accordance with instructions from said system
control unit;

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selecting one of said optical reflection monitors one after another by each of said board control units;

determining status of an optical signal path passing through an I/O port coupled to said selected optical reflection monitor by comparing a monitored signal received from the selected optical reflection monitor with a predetermined threshold by said board control unit;

setting status information indicative of the status of said optical signal path into an optical reflection monitoring register by said board control unit; and

collecting said status information from each of optical switch boards by said system control unit.

16. (Canceled)

17. (Previously Presented) The method according to claim 15,

wherein the status of said optical signal path is determined by comparing an A/D converted monitored signal value with said threshold by said board control unit, and

said status information includes a "1" bit to indicate an abnormal condition when the monitored signal value was judged smaller than the threshold and a "0" bit to indicate a normal condition when the monitored signal value was judged not smaller than the threshold.

18 – 21. (Canceled)